INDICATORS OF ICT USAGE IN EDUCATION

**Expert Meeting *ICTs in Education: State-of-the-Art, Needs and Perspectives - Indicators and Information System*
IITE, Moscow, 28-30 March 2001**

Mr Mike Aston

An international expert meeting *ICTs in Education: State-of-the-Art, Needs and Perspectives – Indicators and Information System* was held in Moscow from 28 to 30 March 2001.

The main goal of the expert meeting was to provide a contemporary vision of the problems of evaluation of ICT usage in education within the framework of the IITE project *ICTs in Education: State-of-the-Art, Needs and Perspectives*. This would help to promote the activity of UNESCO Member States in integrated evalu-

ation of national action plans and policy documents on information technologies in education. To attain this goal, it is important to collect the information on ICT usage in education on a basis of balanced and standardized indicator system.

The problem of *Indicators of ICT Usage in Education* was already described in one of our previous issues (see No. 3'2000). To attain further progress in this realm, twelve experts from Belarus, the Czech Republic, Finland, Germany, Macedonia, Mauritius, Namibia, Pakistan, the Russian Federation, Thailand and the United Kingdom came to Moscow to share their experience. Main task and trends of the IITE activities in evaluation of ICT usage in education were intended to be clarified during the meeting.

According to the agenda and based on the main working document, following issues were discussed:

- international and national experience in educational usage of ICTs in UNESCO Member States and it's evaluation (Mr Mike Aston, consultant, Advisory Unit: Computers in Education);

- *Indicators of ICT Usage in Education* – goals and perspectives in framework of the IITE international project *ICTs in Education: State-of-the-Art, Needs and Perspectives*. Indicator data set: its structure and application in evaluation of ICT usage (Dr Boris Kotsik, IITE programme specialist);

- principles of data obtaining and requirements for IITE information system witin the framework of the project *ICTs in Education: State-of-the-Art, Needs and Perspectives* (Mr Azat Khannanov, IITE programme specialist).

Discussions on the first issue touched

the matters of the ICT usage as an indicator for education quality evaluation. A number of successive problems arising from ICT usage in education were considered here. Problems of educational content, equity of access and digital gap tend to arise. A suggestion was made that IITE focal points should deal with these problems. The conclusion at this point was that unless ICTs are developed in a balanced and equitable way, the gap between different countries, schools and individuals can get wider. Appropriate evaluation of ICT usage in education with the help of indicators may help to keep this balance.

Goals and perspectives of evaluation of ICT usage in education: indicator data set, its structure

Dr Boris Kotsik

IITE ON-LINE NEWS

20 September 2001 (Tanzania): Expert meeting *Distance Higher Education in Africa: Professional and Course Development*
21 September 2001 (Tanzania): Workshop *ICTs in Distance Education*
22 September 2001 (Tanzania): Working meeting on activities of African focal points for co-operation with IITE

Mr Azat Khannanov

planned activities were described here. Special attention was devoted to information contribution and data acquirement for IITE national focal points. A common taxonomy and metadata approach were offered for consideration as a key solution. The proposal to develop a special indicators sub-system within the IITE information system framework was supported by the experts.

After general discussion, recommendations of the expert meeting were elaborated and unanimously approved by the experts:

• considering the activity in evaluation of ICT usage in education to be one of the most important parts of the whole work on the project *ICTs in Education: State-of-the-Art,*

and application were in focus of the second issue of the discussion. Main indicator categories were exposed as well as different types of data and various procedures of their obtaining. IITE experience in this field was described and methodologies for developing adjustable evaluation procedure for different countries and educational models were proposed.

Principles of data obtaining and requirements for IITE information system presented the third issue of the discussion. The goals and

Needs and Perspectives in the IITE activities, a study and research on the existing experience should be made, analytical survey should be prepared and disseminated, a system of ICT indicators should be determined, standards and procedures of indicator measurement for different educational systems should be included in the list of the IITE activities for the nearest future;

• taking into account that education systems of UNESCO Member States vary significantly, there is a need for a development module for policy- and decision-makers and educational authorities on indicators of ICT usage in education, to recommend IITE to form an international working team for preparation of this module;

• a policy paper on *Indicators of ICT Usage in Education* based on the expert meeting's recommendations should be devel-

oped by IITE in collaboration with its partners in UNESCO Member States. At the request of UNESCO Member States, IITE should support pilot projects on indicators of ICT usage in national action plans and policy documents;

• the IITE information system network should include a mechanism for data acquisition, processing, analysis and dissemination on indicators of ICT usage in education. This mechanism should be made a part of the IITE clearing-house activities.

Based on these recommendations, IITE starts developing a sample project on *Indicators of ICT Usage in Education* for the CIS countries.

More information on the expert meeting can be found on the IITE website (http://www.iite.ru) in the *Events* section.

NEW INFORMATION TECHNOLOGIES IN HISTORY EDUCATION

**Expert Meeting *History Education and New Information Technologies*
and Workshop *The Use of the Information and Communication
Technologies (ICTs) in Teaching/Learning History*
IITE, Moscow, 5-7 April 2001**

UNESCO Institute for Information Technologies in Education (IITE) and the Council of Europe held an expert meeting *History Education and New Information Technologies* and a workshop *The Use of the Information and*

Ms Alison Cardwell, Council of Europe representative

Communication Technologies (ICTs) in Teaching/Learning History from 5 to 7 April 2001.

The participants from 10 countries (Belarus, Estonia, Georgia, Germany, Latvia, Lithuania, Norway, the Republic of Moldova, the Russian Federation, the United Kingdom) were invited to increase interest in the use of ICTs in historical study, in both teaching and learning history in secondary schools. Attention was focused on the results of ICT application with regard to teaching/learning strategies.

The meeting was aimed at:
• discussing the role of the information and communication technologies in

teaching history in secondary schools;

• analyzing the way in which ICTs can encourage new methods for teaching and learning history;

• presenting the advantages and disadvantages in ICT usage when teaching and learning history in secondary schools;

• discussing which tools of ICTs can be used when teaching history: from the point of view of teachers and educators as well as authors and publishers in this area.

When meeting was opened, the participants raised two key issues which in their opinion made this expert meeting particularly important.

The first dealt with the ongoing need to revise history textbooks in the light of political and educational changes. Political changes mean that there is a need to counter the strong ideological element in history textbooks.

The second major issue was the need to revise history textbooks in the light of changes in thinking with respect to educational methodology and pedagogy. Information and communication technologies are seen as a key feature of the future education system. A vision of how such technologies should be used must be at the heart of any such development.

Potential benefits of electronic learning are very exciting. In certain parts of Europe this means

**Academician
Alexander Chubar'yan**

by Academician Alexander Chubar'yan, Director of the Institute of General History (Russian Federation). This session took the form of a series of short presentations and descriptions from contributors in a range of states.

those individuals whose lives were disrupted by war and conflict. There is little doubt that history and the new technologies are well suited partners. The technologies could make available source material and access to visual resources such as paintings and architecture. However, making resource material available means some distance from effective and inspiring teaching and learning. Thus, it is vital that developments in delivery of historic information must be aware of the end user and his or her needs in terms of internalising information and making use of it.

Keynote presenter Mr Brian Carvel, Director of the Nelson Thornes Limited Publishing House (United Kingdom) in the lecture *The Migration of Publishing in Print Form to Print and Electronic Publishing* raised the key point that electronic delivery of history resources needs to be aware of the methodological rationale which underpins the teaching of history. It may be that ICTs are better used to reinforce imaginative pedagogy or simply to heighten motivation. They may support individual or collaborative work. They may increase interdisciplinary approaches or simply support individual subjects. Whatever the outcome may be, electronic resources must have a clear rationale if they are to deliver the value they promise.

The first Roundtable *Experience of ICT Usage in History Education in the CIS and Baltic Countries* was moderated

The situation in Estonia is that the Internet is widely used by students. All schools are connected to the Internet. The major reservations appear to centre on teacher expertise. In many cases students are more proficient in terms of technical skills than teachers. It is clear that pedagogy is as much a concern as technical proficiency in maximising the use of ICTs in history.

In Belarus, the same tensions between teaching methods and technical expertise have emerged. Graduate students and trainee teachers are generally well equipped with technical skills. Most of the resources has gone into materials for older students. There have been many resources produced which develop knowledge, such as crosswords. Another popular area has been the development of a computer-based role plays and simulations. The most recent developments have been concentrated on looking at the ways in which computers can help learners to work as individuals, at their own pace.

In Latvia, major efforts have been put into developing CD-ROM resources on the history of the country. The material is generally published in English, and faces the problem of its commercial viability. Without substantial government aid such resources would have never been created.

In Lithuania, a similar approach seems to have met a little more success by the simple expedient of selling a CD-ROM of the

Lithuanian history very cheaply. The state (with charitable aid) has funded training for teachers. The experience has clearly demonstrated that ICTs support teacher when methodology is sound, and can actually hold back learning when not used appropriately. Training has revealed that development must be education-led, not technology-led.

In the Republic of Moldova, the position of ICTs is like this: at the beginning of a long process of reform and development. The Republic of Moldova develops a new curriculum and creats new textbook resources and re-trains teachers. ICTs are the important element in this new curriculum.

In the Russian Federation, there is a clear commitment to history as a subject because it is so central to the personal development of good citizens. This commitment to history is not matched by the extent of development of ICT resources for the subject. Some developers and publishers are blazing a trail with history resources in electronic formats. Against this, there are many factors holding back the progress. The high level of the home Internet access enjoyed by students in some states is not matched in all areas of the Russian Federation. Perhaps the key factor is engaging the profession of a teacher as widely as possible. In many instances, teachers are behind students in terms of their technical skills and their awareness of valuable electronic resources, particularly websites. The really high quality practice taking place in Russia is that which is being carried out by enthusiasts. In Russia, the need to develop teacher awareness of ICTs and to shape teaching methods to make the most of this resource is the most important single job.

The second Roundtable *Practical Examples of the ICT Usage in the Classroom* was moderated by Prof. Leo-

nid Borodkin (Moscow State University).

The presentation (by Mr Benedict Walsh, Head of the Historical Association Education Committee, United Kingdom) dealt with the experience of using ICTs in a history classroom. There are wide variations in the United Kingdom in terms of access to ICT resources and practice. The key issue emerging is the balance between content and how students find interest, meaning and achievement from that content. This has put the responsibility of creating meaningful and engaging tasks on to the teacher which exploit the power of ICTs to access and transfer of information, and also the power of ICTs to help students to make information their own and create their own products by using it. In short, this has taken the form of electronic sources of information which students use to answer a core historical question and demonstrate their understanding in different ways.

Dr Vasily Sukhov (Moscow Pedagogcal University) explored the issue of integrating textbook and electronic resources into the teaching of history. The project described was a two stage process. The first stage involved translating the content of a successful textbook into a CD-ROM format. The next most important step was to create a methodology through which learners could use the CD-ROM to explore important questions.

Mr Brian Carvel

The third presentation (Mr Alexis Chernov, history teacher, Russian Federation) looked at the experience of using ICTs as a teaching tool in Russian school. A number of contextual factors had influenced the way in which he developed the use of ICTs in his teaching.

Two further themes dominated the discussion, and were closely related. The first was the role which ICTs could play in helping students to develop skills of critical thinking. All the participants agreed that critical approaches were extremely important, not in the least in the light of political changes and the need to remove ideological influences in history education. It was further agreed that many of the approaches in the presentations could further such approaches. However, the second issue discussed was critical to the point of the position of a teacher. ICTs would only help to develop critical thinking if they were used effectively as a resource to support effective teaching.

The third Roundtable *History Textbook Publication and the Publication of Textbooks on CD-ROMs* began with a lengthy consideration of the meaning and nature of such terms as electronic textbook.

Experience in the United Kingdom and Germany showed that teachers mix and match resources according to their needs, their students, availability of the resources and preferred teaching styles of the teachers.

Further points were also raised about the process of developing electronic resources.

Ms Mette Molland of the Gyldendal Publishing House described the position of history as a subject in Norway, and the ways in which her publishing house had developed new textbook and electronic materials to support the subject. History in the Norwegian curriculum is a long established subject.

Gyldendal is looking at developing an integrated textbook and electronic resource for history teachers which would support teaching and help to change teaching methodology in history.

Dr Alexis Kharitonov (CLIOSOFT Publishing House, Russian Federation) demonstrated a product which was aimed at supporting teaching and autonomous learning.

A different type of resource was demonstrated by Mr Vladimir Vikhrev (MEDIAHOUSE Publishing House, Russian Fe-

The participants of the expert meeting

deration). The product is aimed at younger students and is focused on giving them interesting activities in the hope of stimulating acquisition of knowledge.

Recommendations of the Expert Meeting

It was clear from the discussion at the meeting that certain issues are common to all of the countries involved. The single most common and heavily rated issue is that of training teachers in the use of the new technologies.

It was therefore generally accepted that the priorities emerging from the meeting might be summarised as developing teacher awareness of potential use of ICTs in history education and information for developers of electronic resources on

needs of teachers and limitations they face.

DEDICATED WEB PAGES

The creation of web pages to provide a point of reference for all those interested in developing the use of ICTs in history education.

Most important, the information networks of the Council of Europe and UNESCO would be used to raise awareness of this resource as widely as possible.

NATIONAL PILOT PROJECTS

The expert meeting made it clear that much good practice in the use of ICTs in history is already in existence. The aim of the national pilot projects would be to locate and codify good practice in respective national areas.

Models for national pilot projects exist in Germany and in the United Kingdom specifically for history and ICTs. Development models for other subjects or other areas within the field of history also exist even more widely throughout Europe. Such projects are likely to be the responsibility of national governments, but UNESCO and the Council of Europe may be able to provide assistance in some forms.

FURTHER CO-OPERATION IN THE AREA OF THE USE OF ICTs IN HISTORY EDUCATION

The expert meeting recognised the unique roles occupied by

UNESCO and the Council of Europe in bringing together diverse experiences and expertises to achieve common aims. The meeting was anxious that further possibilities for such co-operation between respective governments and the agencies are to be explored.

IITE and the Council of Europe held a workshop *The Use of the Information and Communication Technologies (ICTs) in Teaching/Learning History* on 7 April 2001.

Mrs Olga Filonova of the Russian National Multimedia Centre and Ms Mette Molland of the Gyldendal Publishing House were looking to develop an integrated textbook and electronic resource for history teachers which would support teaching and help to change teaching methodology in history.

Mrs Irena Safonova and Mr Jan Solov'ev, Moscow history teachers, informed about the experience of ICT use in history education.

Mrs Leda Sysoeva and Ms Elena Bobrova, invited speakers from the Russian State University for the Humanities, told about and demonstrated a multimedia programme using a presentation package and history of creating "1812" website .

The workshop confirmed a critical role of a teacher in the development of educational system particularly in the information society where information and communication technologies would play a very important role. ICTs provide both new opportunities and challenges for a teacher and play a catalyst role in shifting teacher from information dispenser to a guide, mentor, knowledge navigator, consultant and co-learner with a student.

The Final Report on the expert meeting and workshop may be obtained at IITE.

DIGITAL LIBRARIES FOR EDUCATION

**Workshop on European/Russian Co-Operation in Digital Libraries
and Expert Meeting *Digital Libraries for Education*
IITE, Moscow, 7-9 June 2001**

UNESCO Institute for Information Technologies in Education (IITE) held a joint workshop with the DELOS Network of Excellence for Digital Libraries and Institute of Informatics Problems of the Russian Academy of Sciences (IPI RAS) on European/Russian co-operation in Digital Libraries followed by the expert meeting *Digital Libraries for Education* in accordance with the IITE Programme activity plan from 7 to 9 June 2001.

Workshop

More than thirty participants from eight countries (China, Germany, Greece, India, Italy, the Russian Federation, Sweden, the United Kingdom) took part in the workshop. They were welcomed by Prof. Yannis Ioannidis (DELOS), Prof. Igor Sokolov (IPI RAS) and Prof. Valery Meskov (IITE). Participants were informed about the activity of all organizations in the sphere of Digital Libraries (DL). Prof. Yannis Ioannidis was elected a Chairperson of the workshop and Prof. Leonid Kalinichenko (IPI RAS) was elected a Rapporteur.

The following themes of the reports were presented:

• DL Projects: General Issues;

**Prof. Leonid Kalinichenko, Chif of the Laboratory of IPI RAS, and Mrs Magna Zormelo,
Head Officer of the Breada Documentation Centre of the UNESCO Regional Office in Dakar**

• DL Technologies for Large Libraries;

• Open Archives and Gateways;

• Federated Architectures;

• Architectures for Scientific Collections;

• Audio/Video Archives On-Line;

• DL for Cutural Heritage;

  • DL in Education.

Expert meeting

The expert meeting was held on 9 June 2001. Prof. Leonid Kalinichenko was elected a Chairperson of the workshop and Dr Liang Zhang (Fudan University, Shanghai) was elected a Rapporteur.

UNESCO supposes to foster new forms of networking of teacher-training institutions and teachers, creation of electronic libraries and production of electronic educational materials. In this connection, the following themes were discussed at the expert meeting:

1. Experience of the most effective digital libraries usage for education including:

• Existing typologies of using DL for education.

• Role of using DL for educators and learners in various kinds of schools.

• Will education benefit from DL?

• Digital libraries and life-long learning.

2. Merits and demerits of digital libraries in education:

• services and information collections offered by DL and resulting quality of education;

• required educational information resources for educators and learners;

• digital libraries and distance learning;

• educator's motivation for using digital libraries;

• forming a community of educators/learners/librarians around DL.

Prof. Yannis Ioannidis, University of Athens, DELOS representative

Prof. Igor Sokolov, Director of IPI RAS

Dr Liang Zhang, Associate Professor of the Fudan University

3. Role and policy of IITE in the development of digital libraries for education.

Information materials

As a basis for discussion, all experts received the information materials *Digital Libraries in Education: State-of-the-Art Report*. These materials were prepared by Prof. Leonid Kalinichenko and Dr Liang Zhang. The information materials contain brief analysis of current trends leading to quite rapid changing of learning environment in the contemporary society, detailed survey of the most noticeable programmes and projects of development of Digital Libraries for Education (DLE) – such as NEEDS (National Engineering Education Delivery System), IMS (Instructional Management Systems), SMETE (Science, Mathematics, Engineering, and Technology Education), DLESE (Digital Library for Earth System Education), Scholnet, Cyclades as well as infer requirements for digital libraries for education as an outcome of this survey. Short digest of the information materials content follows.

In the competitive space of alternative information service suppliers surrounding any organization that undertakes an educational mission in the society, the role of traditional library as primary aggregator and purveyor of content to its community becomes less and less unique. Users (students and educators) want control of their own information environment.

Another change in learning environments is that the quality of someone's teaching is no longer a personal or departmental matter. Education is considered as a service that is evaluated for its quality, just like other services.

New requirements are imposed on the knowledge industry in partnership with librarians and educators to provide adequate changes in information infrastructures and education methods to support learning as a *lifetime activity, learning anytime and anywhere*.

Introducing Digital Libraries into the education process was well prepared by distance education that is being developed by years. The Internet and the web distance education programmes can mount sets of materials on web servers to support each course. New pedagogical methods should accompany DLE as an emerging technology for education to reach the compelling vision of education:

"Any individual can participate in on-line education programmes regardless of geographic location, age, physical limitation or personal schedule. Everyone can access repositories of educational materials, easily recalling past lessons, updating skills or selecting from among different teaching methods in order to discover the most effective style for that individual. Educational programmes can be customized to each individual's needs, so that our information revolution reaches everyone and no one gets left behind".

Digital library must not be seen as merely a digitized collection of information objects plus related management tools, but as an environment bringing together collections, services and people to support the full cycle of creation, dissemination, use and preservation of data, information and knowledge. DLE is considered as a *federation of library services and collections* that function together to create a digital learning community. The range of supported materials includes curricula and courseware materials, lectures, lesson plans, computer programmes, modeling and simulation, intelligent tutoring systems, access to remote scientific instruments, project-based learning, tools, results of educational research, scientific research reported both formally in journals and informally on websites, raw data for student activities and multimedia image banks. DLE will be much more than the sum of its parts and will promote change and innovation in scientific and technical education at all levels.

Large programmes being developed in the DLE area look quite impressive:

1) National Engineering Education Delivery System Project (NEEDS)

NEEDS is the distributed architecture developed by Synthesis: A National Engineering Education Coalition to enable *new pedagogical models* based on the Internet-mediated learning environments. NEEDS catalogs courseware and other instructional software developed nationally and internationally to provide a resource where *both instructors and learners can search, access and download* educational materials over the Web. NEEDS encompasses all U.S. engineering colleges. NEEDS develops a new vision of a digital library to serve the engineering education "community".

2) National Digital Library for Science, Mathematics, Engineering and Technology Education (NSDL)

To stimulate and sustain continual improvements in the quality of science, mathematics, engineering, and technology (SMET) education, the National Science Foundation (NSF) has launched the National Science, Mathematics, Engineering, and Technology Education Digital Library programme. The resulting digital library is intended to serve the needs of learners belonging to a broad user audience – K-12 to undergraduate, graduate and life-long learning. The NSDL programme is an unusual programme for NSF in that its projects are engaged in building an enterprise much larger than the object of any one grant. The SMETE Library is not a research project, but it will be greatly strengthened by a parallel programme of research.

The SMETE Library should be *sustainable, reflect current best practices regarding standards, and should be a cost-effective mechanism* for enhancing quality education in science, mathematics, engineering and technology for undergraduates on the national scale (*reaching all students*). NSDL is considered as the aggregated capabilities of numerous, more specialized digital libraries, focused collections and other digital resources referred to as NSDL Member Libraries/ Collections.

3) Digital Library for Earth System Education (DLESE)

DLESE is a community-owned and governed digital library for the Earth system science. Collections, services and tools will be developed and maintained by numerous partners rather than being housed in a single centralized facility. Fundamental to the design and construction effort is a commitment to building a library that responds to the needs of the Earth system education community. DLESE is one of the initial members of NSDL.

4) Scholnet and Cyclades: Extending the Role of Digital Libraries

Scholnet (IST-1000-20664) and Cyclades (IST-2000-25456) are two digital library projects funded by the EU 5th Framework Programme and coordinated scientifically by the IEI – CNR. Both projects aim at extending the

role of a digital library by providing services that support *remote communication and collaboration among scholars*. In particular, the goal of Scholnet is to develop a digital library providing an enhanced set of specialised services, while Cyclades is focussed on the need to develop a service environment on top of the large heterogeneous and multidisciplinary interoperable archives.

5) Instructional Management Systems Project (IMS)

Designers and developers of online learning materials have an enormous variety of software tools at their disposal for creating learning resources. To cope with this diversity, IEEE Learning Object Meta-data (LOM) effort has been undertaken to define a metadata standard that can be used to describe learning resources. This standard specifies a conceptual data scheme that defines the structure of a metadata instance for a learning object. For this standard, the learning object is defined as any entity, digital or non-digital, that may be used for learning, education or training.

Long range objectives for DLE as a *national treasure* include lifelong learning and learning anytime, anywhere. The results of these developments eventually will have a significant impact on the humanity comparable to that of the Web. The digital libraries for education are being developed as *an environment bringing together collections, services and people* to support the full cycle of creation, dissemination, use and preservation of data, information and knowledge so that communities of research and education become more efficient and productive and the benefits of collaboration are maximised.

Immediate conclusion that can be drawn from preliminary analysis of possible DLE impact on educational environment is that to cope with the process of globalization in education as the natural outcome of DLE expansion and to preserve at the same time national identity of educational content in different countries, careful analysis of possible scenarios of development of education infrastructure under the influence of the new methodological and technological advance-

ments is to be undertaken to provide for their timely, gradual and efficient merge with traditional practice.

Recommendations

As the result, the members of the expert meeting approve the following draft recommendations:

* In order to foster (a) new forms of networking between teacher-training institutions and teachers, (b) the creation of electronic libraries and (c) the production of electronic educational materials, an *international working group* should be created. Its primary goal should be to investigate the existing experience on DL in education and prepare an analytical survey to be widely disseminated. This should be included in the IITE programme for the next biennium.

* Taking into account the high levels of heterogeneity characterizing educational users of digital libraries, cooperative strategies should be initiated to create an *open archive infrastructure* for

building value-added services for education. This should become part of the IITE clearing-house activities.

* Since a large number of open educational archives already exist, IITE should create a *meta-management structure* for mirror sites and provide standardized coordinated access to open and licensed archives through a distributed *network of websites*. These should be fine tuned and maintained basing on the appropriate technologies and software/protocol systems.

* A comprehensive and regularly updated *directory of websites* hosting educational resources should be created. It should be enriched with relevant annotations, including information about the Digital Library Standards. The directory should be made a part of the IITE information system.

* A special *training module* on DL usage in education should be prepared within the framework of the IITE educational programme.

Within the framework of the Dakar follow up and striving to assist UNESCO Member States in designing policies for integrating information and communication technologies into education, IITE organized a high level seminar for decision- and policy-makers *Towards Policies for Integrating ICTs into Education* from 26 April to 30 June 2001. In response to the IITE announcement and invitation, the Ministers of Education from 13 UNESCO Member States nominated the participants, among whom there were deputy ministers, heads of the departments of the Ministries of Education and other educational personnel responsible for national policies on ICT application. The following Member States were represented at the first seminar: Armenia, Azerbaijan, Belarus, the Czech Republic, Estonia, Kazakhstan, Kyrgyzstan, Lithuania, the Republic of Moldova, the Russian Federation, Tajikistan, Ukraine and Uzbekistan. Three regions of the Russian Federation (Moscow, St. Petersburg and Tatarstan) were represented, too.

The seminar was prepared by an international working team and moderated by Prof. Bernard Cornu (France) – Chairman, Mr Mike Aston (United Kingdom), Prof. Raymond Morel (Switzerland), Dr Bal K. Passi (India), and Mr Matti Sinko (Finland). The seminar was divided into three related parts. The first three-day period at IITE was devoted to such main themes as "Education and Sustainable Development", "Educational Philosophy in the 21st Century", "Sample Policies", technology, process, pedagogical and ethical issues and issues of economy. The participants shared problems and their reflections on ICT application in education. During the second two-month period, the par-

ticipants worked on their own, sharing ideas and being supported by the IITE consultants electronically, elaborating or improving national strategies, policies, programmes and action plans on ICT usage in education. The work of the seminar was supported constantly through the IITE website and IITE information system. The third two-day period at IITE was mainly devoted to practical work and to prospective matters related to further integrating ICTs into education. At the end of the seminar the participants were presented with the Certificates of attendance.

The results achieved at the first seminar encouraged a further development of this form of work for the benefit of UNESCO Member States. This theme will be discussed at a Special Interest Group for policy-makers within the framework of the Seventh UNESCO-ACEID International Conference on Education (Bangkok, Thailand, December 2001). IITE plans to make this seminar a regular event.

Prof. Bernard Cornu

INTERNATIONAL RESEARCH SEMINAR
"Distance Education for Rural Schools of the Republic of Kazakhstan"
Republic of Kazakhstan, Almaty, 23-26 May 2001

In accordance with the address by the Government of Kazakhstan and National Commission for UNESCO on realization of a national pilot project *"Distance Education for Rural Schools"*, UNESCO Institute for Information Technologies in Education (IITE) and Republican Science and Methodical Center for Informatization in Education (National IITE focal point) conducted a practical international seminar *"Distance Education for Rural Schools"* in Almaty from 23 to 26 May 2001.

The seminar was attended by the employees of IITE, Republican Science and Methodical Center for Informatization in Education, representatives of the Foundation *"Soros-Kazakhstan"*, Academy of Sciences and Higher School of the Republic of Kazakhstan as well as the heads of eight regional centers for informatization in education, employees of the regional departments of education, rural school teachers and representatives of the *"Katelco"* and *"Khabar"* joint stock companies.

While organizing and conducting the seminar, objectives and conditions for implementation of the national pilot project as well as requirements in certain resources have been determined. In particular, necessity for using the Republican Educational Television Channel for implementation of the project objectives has been revealed.

The seminar has demonstrated a broad picture of the modern situation with informatization in higher education in Kazakhstan. At present, the *"State Programme for Informatization in the System of Higher Education"* and *"The Internet for Schools"* are being implemented in the Republic of Kazakhstan; as the result, the major part of more than 8,000 schools (40% of which belong to the rural ones and consequently, 55% of which are low-equipped) possesses computer classes. By 1 September 2001, the Republican Government plans to equip the schools with computers by 100%.

Speaking about the programme means of education, the Republic of Kazakhstan has at its disposal near 100 electronic text-books (ET) including ten covering school study subjects written by the Republic of Kazakhstan education standards. There is an experience of the School Television Technical Center (STTC) tele-education based on the experience of a rural gymnasium mastered by the People's Teacher Kumash Nurgaliyev. Major part of the reports and presentations has been dedicated to methodology and practical development of distance education as well as education process manage-

The participants of the international research seminar

ment system. The seminar analysed potential opportunities of the Akmolinsk, Aktjubinsk, Almaty, Atyrausk, East-Kazakhstan, Kostanay, Kyzyl-Ordynsk, Mangistausk, North-Kazakhstan and South-Kazakhstan Regions in the implementation of the project *"Distance Education for Rural Schools"*.

The seminar participants have revealed the primal objectives for the implementation of the project; they have also made up a stage-by-stage implementation plan for these objectives. The following decisions have been taken at the seminar:

- to work out a Republican conception as well as a complex and objective programme on development of distance education (DE) within the system of non-stop education "school – professional and technical school – college – institute" including rural low-equipped schools;

- to conduct DE seminars for teachers of Almaty, Astana and regional centers;

- to implement training and re-training of teachers for using electronic text-books within the DE system;

- to recommend higher education institutions to conduct ET training of future teachers according to the new content of school education by creating a complex of new generation textbooks combining textual, electronic as well as video versions;

- to create conditions for forming Republican creative groups composed of scientists, methodologists as well as best practicing educators for working out ETs whose results would be applied at re-training heads of the departments, school teachers and staff employees belonging to the DE system;

- to provide creation of electronic reading-halls and video class-rooms employing video-library functions based on various STTC for experimental schools;

- to perform planning of the DE process by using education television, personal computers and software by the *"Prometeus"* company as well as school television technical centers.

In the course of the seminar, Mr N. Bekturganov, Minister of Education and Science of the Republic of Kazakhstan has held a meeting with the representatives of IITE and Regional Center for Informatization in Education at which crucial decisions to support the project have been taken.